

IN THE CLAIMS

1-19 (canceled)

20.(new) A process comprising:

applying an aqueous, acidic solution having dissolved contents to a metallic surface, said metallic surface comprising at least 5% by weight of at least one of aluminum or an aluminum alloy, wherein the dissolved contents in the phosphating solution comprise:

virtually no sodium or a concentration of sodium in the range of at least 0.04 g/l,

virtually no potassium or a concentration of potassium in the range of at least 0.025 g/l,

wherein the concentrations of sodium and potassium together is in the range of 0.3 to 1.8 g/l as sodium, the potassium content being converted to sodium on a molar basis;

zinc in a concentration range of 0.2 to 4 g/l;

phosphate in a concentration range of 4 to 65 g/l, calculated as PO₄;

free fluoride in a concentration range of 0.03 to 0.5 g/l;

total fluoride in the concentration range of 0.1 to 5 g/l;

wherein no or almost no precipitation product based on aluminium fluorocomplexes of ammonium, alkali metal or alkaline-earth metal is deposited on said metallic surface, below the phosphate film and/or between the zinc phosphate crystals in the phosphate film on the surfaces of aluminium or at least one aluminium alloy phosphated in this way and wherein a zinc-containing phosphate film is deposited on the metallic surfaces and has a coating weight in the range of 0.5 to 10 g/m².

21. (new) The process according to claim 20, wherein the contents of dissolved aluminium in the phosphating solution are in the concentration range of 0.002 to 1 g/l.

22. (new) The process according to claim 20, wherein the total content of silicon complex fluoride and boron complex fluoride together in the phosphating solution is 0.01 to 8 g/l – optionally converted on a molar basis as SiF_6 , wherein the two groups of fluoride complexes may optionally both be present at the same time.

23. (new) The process according to claim 20, wherein the content of complex bound fluoride in the phosphating solution is from 0.01 to 8 g/l, calculated on a molar basis as SiF_6 .

24. (new) The process according to claim 20, wherein the contents dissolved in the phosphating solution are as follows:

sodium: in the concentration range of 0.050 to 2 g/l,

potassium: virtually none or in the concentration range of 0.030 to 1.5 g/l,

sodium and potassium: in the concentration range of 0.025 to 1.5 g/l as sodium, potassium being converted to sodium on a molar basis,

silicon complex fluoride: in the concentration range of 0.01 to 4 g/l and/or

boron complex fluoride: in the concentration range of 0.01 to 4 g/l, calculated as SiF_6 and BF_4 respectively.

25. (new) The process according to claim 20, wherein at least one of the contents in the phosphating solution are as follows:

sodium: virtually none or in the concentration range of 0.060 to 1.8 g/l;

potassium: in the concentration range of 0.035 to 1.4 g/l;

potassium: in the concentration range of 0.035 to 1.4 g/l;

sodium and potassium: in the concentration range of 0.05 to 2 g/l as sodium, potassium being converted to sodium on a molar basis;

silicon complex fluoride: in the concentration range of 0.02 to 1 g/l or

boron complex fluoride: in the concentration range of 0.02 to 3 g/l, calculated as SiF₆ and BF₄ respectively.

26. (new) The process according to claim 20, wherein the dissolved contents comprise at least one of nickel: virtually none or in the range of 0.001 to 3 g/l or manganese: virtually none or in the range of 0.002 to 5 g/l.

27. (new) The process according to claim 20, wherein the dissolved contents comprise at least one of

dissolved iron²⁺ ions: virtually none or in the concentration range of 0.005 to 3 g/l or complexed iron³⁺ ions: virtually none or in the concentration range of 0.005 to 1 g/l.

28. (new) The process according to claim 20, wherein the dissolved contents comprises at least one of:

silver: virtually none or in the concentration range of 0.001 to 0.080 g/l or copper: virtually none or in the concentration range of 0.001 to 0.050 g/l.

29. (new) The process according to claim 20, wherein the dissolved contents comprises at least one of:

titanium: virtually none or in the concentration range of 0.001 to 0.200 g/l or zirconium: virtually none or in the concentration range of 0.001 to 0.200 g/l.

30. (new) The process according to claim 20, wherein the dissolved contents comprise at least one of:

ammonium: virtually none or in the concentration range of 0.01 to 50 g/l or nitrate: virtually none or in the concentration range of 0.01 to 30 g/l.

31. (new) The process according to claim 20, wherein the dissolved contents comprise at least one of:

sulfate: virtually none or in the concentration range of 0.005 to 5 g/l or chloride: virtually none or in the concentration range of 0.020 to 0.5 g/l.

32. (new) The process according to claim 20, wherein the phosphating solution comprises at least one accelerator selected from the group consisting of a compounds or ions based on

nitrogen-containing compounds in the concentration range of 0.01 to 8 g/l;
chlorate in the concentration range of 0.01 to 6 g/l;
hydroxylamine in the concentration range of 0.01 to 3 g/l; and
peroxide, including water-soluble organic peroxide, in the concentration range of 0.001 to 0.200 g/l, calculated as H₂O₂.

33. (new) The process according to claim 20, wherein the content of magnesium in the phosphating solution is not more than 1 g/l.

34. (new) The process according to claim 33, wherein the contents of the magnesium is not more than 0.15 g/l.

35. (new) The process according to claim 20, wherein the pH is in the range of 2 to 4.

36. (new) The process according to claim 20, wherein the content of free acid determined with KCl is in the range of 0.3 to 6 points, the content of dilute total acid is in the range of 8 to 70 points or the content of total acid according to Fischer is in the range of 4 to 50 points.

37. (new) The process according to claim 20, wherein the phosphate coating is applied at a temperature of from 20 to 70°C.

38. (new) The process of claim 20, wherein the surface is a body part for an automobile or an aircraft, a sheet, a wire mesh, or a small plant